

Dr. Muter's analysis—

Water	=	15.00	per cent.
Salt	=	3.96	" "
Curd	=	2.14	" "
Foreign fat	=	55.2	" "
Butter fat	=	23.7	" "

The fat was thus made up of 30 per cent. of butter fat and 70 per cent. foreign fats. The fat had a melting point below that of butter, and yielded 93.3 per cent. of fatty acids. When examined by the microscope the butter was found to contain fat in a crystalline state, and the so-called curd consisted of vegetable matter, which was described as parenchyma. Finally, the butter was stated to be but slightly rancid.

Dr. Muter said that his standard for genuine butter was 88 per cent. of fatty acids.

Dr. Muter, who appears to have had sufficient of his sample to supply several of his friends, was supported in Court by his assistant Mr. De Konigh, Dr. Dupré, Mr. Wigner, and a microscopist.

Dr. Dupré and Mr. Wigner's Results.—Dr. Dupré found in the fat 94.05 per cent. and Mr. Wigner 94.20 per cent. fixed fatty acids, and the melting-point of the fat 4° C. below that of genuine butter. On a microscopic examination of the butter, both found crystals of fat, which indicated that it had been fused. They also stated that the butter was practically free from rancidity.

Dr. Dupré was of opinion, from the results of his analysis, that there was a doubt whether the sample contained any butter at all; and Mr. Wigner considered that if it contained any butter-fat the quantity must be small, but indeed he thought it was foreign fat simply flavoured with caproic acid. He further stated that his standard for pure butter was 87.5 per cent. fatty acids.

Somerset House Results.—The portion of the sample retained by the inspector, and referred by the magistrate to Somerset House for analysis, weighed about 45 grammes, and it was stated that the experiments performed were not only of an exhaustive character, but were repeated in most instances.

The chemists there found as follows:—

Water	=	9.83	per cent.
Salt	=	3.70	" "
Curd	=	0.93	" "
Fat	=	85.54	" "

The fat gave a melting point of 33.3° C., a density of .9053 at 100° Fahr., and yielded 88.7 per cent. fatty acids, the latter being seven-tenths above Dr. Muter's standard.

The butter was found to be very rancid, and this rancidity would account for the slight excess of fixed fatty acids, it having been found by actual experiment that butter depreciates by exposure, and that there is a corresponding increase of the fixed fatty acids found in the fat.

On a microscopic examination the butter was found to be free from crystals of fat, and the only foreign substances present were a few particles of impurities consisting of hard wood and cotton thread.

The following are the results of the analysis of the fat of an article corresponding to "butterine," which was referred to in Court as having been examined in exactly a similar way as the sample in dispute:—

Fatty acids, 93.32 per cent., melting-point, 25° C., and density of fat at 100° F. = .90108.

The processes followed by the different chemists for the analysis of the samples differed but little, but the chemists at Somerset House adopted an additional safeguard against error in saponifying the fats, by taking the density of the fat in the sample at a temperature of 100° F.

The melting-point, the density of the fat, and the quantity of fixed fatty acids were clearly shown to be in complete accord, and these three results are certainly most important in their direct bearing on the accuracy of the analysis.

NATURAL HISTORY OF ST. HELENA

THE following extracts from a letter addressed to Dr. Hooker by Mr. Wollaston, who has been residing for some months in St. Helena for the purpose of investigating the insect fauna, can hardly fail to be interesting to students of geographical distribution:—

"Plantation House, St. Helena, Nov. 22, 1875

"At this season of the year it is extremely difficult to obtain seeds, for the genuine native plants which are still not extinct, in addition to being extremely few in number, nearly all grow in places very difficult of access at a time when the upper ridges are nearly always covered with cloud, and only a certain proportion of them are showing any signs of active life (in the shape of flowers and seeds); but I have been able to collect three out of the four species of cabbage-trees, a *Lobelia*, two or three *Wahlenbergias*, and (best of all) the extremely rare *Aster* (or *Commidendron*) *Burchellii*. This last is, I think, as nearly extinct as anything still living can be. Mr. Melliss says there is only one plant of it in the island; but in that he is wrong, for we counted two or three, in full blossom, in the same grove of the *Aster gummiferus*, in which he records the existence of his single individual. We have, however, seen it nowhere else, and it is decidedly on its last legs. Even the *A. gummiferus* is excessively rare, and I shall hope to get you seeds of it before we leave the island; as well as of the *Commidendron robustum* (the true 'gum-wood'). . . . The *A. Burchellii* is so rare that I have been drying you a few specimens, feeling that (as it may soon be gone altogether if we cannot persuade the islanders to spare it from their donkey-loads of firewood) you might, perhaps, like some fresh ones. . . .

"The insect flora, although so extremely limited that I have not in nearly even three months collected more in Coleoptera than 150 species, still continues to keep up its character for eccentricity—ringing the changes on some half a dozen types (chiefly Rhyncophorous) to a marvellous extent. We seem indeed never to exhaust them, turning up new species almost every time that we can secure a hard day's work on the *Composita* ridge. Having ultimately to work them out, I take scores of specimens, and must have mounted carefully some six or seven thousand already." T. D.

NOTES

THE following are the proposed movements of H.M.S. *Challenger*:—She was to leave Valparaiso on Dec. 10, and arrive at the Falkland Isles on Jan. 10; leave on Feb. 6, arrive at Monte Video Feb. 18; leave Feb. 28, arrive at Tristan d'Acunha March 20; leave March 21, arrive at Ascension April 7; leave April 14, arrive at St. Vincent May 5; leave May 12, and arrive in England June 12.

THE Senior Wrangler in this year's Cambridge Mathematical Tripos is Mr. Joseph Timmis Ward, of St. John's, son of the late Mr. Henry Ward, of Banbury. He was educated at Rochester Cathedral Grammar School, under the Rev. R. Whiston. Mr. William L. Mollison, of Clare, the Second Wrangler, is a native of Aberdeen, and is the son of Mr. W. Mollison, of that town. He was educated at the Grammar School and University of Aberdeen.

WE would call attention to the advertisement in to-day's NATURE by the Kew Committee, offering to the public greater facilities for the verification of instruments than have hitherto existed at Kew.

WE understand that the eminent ornithologist, Dr. G. Hartlaub, of Bremen, has in preparation a new work on the Birds of Madagascar. This will be a considerable undertaking, as since

the publication of Dr. Hartlaub's last work on this subject ("Ornithologischer Beitrag zur Fauna Madagascars," Bremen, 1861), great additions have been made to our knowledge of the ornithology of this wonderful island by the investigations of Pollen, Van Dam, Grandidier, Crossley, and other naturalists.

DR. O. FINSCH, of Bremen, and Alfred Brehm—both well-known German naturalists—will accompany the scientific expedition to the Obi (Northern Siberia), which is to start in March next.

THE Museum of Bremen, founded by a private society of merchants, and well known to ornithologists of all countries from the rarity of many of the specimens and the excellent manner in which they are mounted, will shortly become the property of the City of Bremen. It is said that Dr. O. Finsch is likely to be appointed its first director under the new régime. We may add that no more eligible selection could be made.

NEW ZEALAND papers just to hand report an interesting discovery of moa bones in that colony farther north than any have previously been found. No remains of the extinct bird having been discovered north of the town of Auckland; the moa region was supposed to have lain altogether to the south of that place. The advices now received, however, state that numerous bones, representing the skeletons of fifteen moas, have been found along the beach for many miles north of Whangarei Heads, sixty miles to the north of Auckland. The discoverers were Mr. George Thorne, and Mr. Kirk, the Secretary of the Auckland Institute. With the moa bones were discovered several human skulls and a complete human skeleton in a sitting posture (the position in which it was usual to bury Maoris); also many large pebbles, such as the moa was in the habit of swallowing with its food, a rude stone hatchet, and some chips of obsidian. The spot where the remains were discovered was at one time covered with vegetation, but this having been burned by bush fires the ground had been covered by drifting sand, the disturbance of which by the wind has exposed the bones. The natives in the district had no knowledge whatever of the existence of any of the remains discovered, whose antiquity is believed to be considerable. Further researches in the same locality may possibly be productive of interesting results.

A LETTER from M. Alluard, the director of the Puy de Dôme Observatory, has been published in the *International Bulletin* of Jan. 29, intimating that the establishment is now in full operation. M. Alluard has ascended the mountain for the purpose of taking instruments to the observers on the top. The elevation is about 6,000 feet above the level of the sea. It was on the top of the Puy de Dôme that, in 1647, Perier, the brother-in-law of Pascal, verified the fact, discovered at Paris, that pressure diminishes with the altitude. The first experiments were made by Pascal himself on the top of St. Jacques la Boucherie, whose height is about ninety feet. A statue of Pascal was placed on the basement of the tower about 1862, when occurred the second centenary of his death. The top of the Puy de Dôme is to be connected by a telegraphic wire with the Clermont Academy of Sciences, so that observations may be recorded daily and sent by telegram to every station in correspondence with the International Service.

AT the Court of Common Council last week Sir Charles Reed presented a resolution of the Committee for managing the Gresham College Trusts, of which Committee Sir Charles is a member, and Lord Selborne Chairman. Sir Charles gave a brief history of the institution, which, as our readers may surmise, was a record of decay and misappropriation. Sir Charles's motion, which was agreed to, was that the Gresham Committee (City side) be authorised to put themselves in communication with the Charity Commissioners, with the view of effecting the objects

contemplated. In 1867 the Gresham Committee was advised by counsel that the only satisfactory solution of the difficulty would be found in the agreement of the Corporation and the Mercers Company to propound a scheme for the sanction of Parliament. That agreement has now happily been arrived at. We hope that Sir Charles's prediction will be realised, and that the result of the deliberations will be a scheme which will cause the College once more to represent the wishes of the founder in making it, what he originally designed it to be, a college for the furtherance and advancement of learning in London.

INTELLIGENCE received at Lisbon last week announced that Lieut. Cameron was almost completely restored to health. Baron Barth, the well-known German geographer, had arrived at Lisbon en route for Angola.

A REPORT by Drs. W. Elgar Buck and G. C. Franklin, on the Epidemic Diarrhœa of 1875 in Leicester, has been presented to the Sanitary Committee of that borough and printed. After a careful analysis of the whole facts, the authors show that Leicester is not an unhealthy town as regards the adult population; that the excessive rate of its infantile mortality, which really regulates the total mortality, is due to a "specific diarrhœa," eminently fatal, which prevails in July, August, and September; that such conditions, as are often assigned as causes of this destroyer of infant life, viz., early age or debility of parents, maternal neglect and debility, non-suckling, and opium-poisoning of infants exist in Leicester, as in other manufacturing towns, but have no appreciable effect in the main question at issue; and that the houses in which the fatal cases occur are not in themselves insanitary as regards size and number of rooms, water supply, ventilation and space, house drainage, and closet accommodation. The disease is not diffused equally among all classes of the community, the wealthy classes being wholly exempt from it as regards fatal results; and it is not the most densely-peopled districts, nor the poorest sections of the community in which the mortality is greatest; but the disease is most prevalent where the soil is water-logged, where sewers are liable to be blocked up, and where the houses have been built on undrained ground made up of refuse from all parts. In those districts of the town where these conditions exist in a less degree, the disease is less prevalent, and where they do not exist, the disease is almost wholly unknown. Drs. Buck and Franklin recommend, for the mitigation of the disease, that the subsoil be efficiently drained of its superfluous water, that a free outfall be found for the sewers, and that clay-pits or other excavations should not be filled up with filthy ash-bin refuse and then built upon. We hope that the authors of this suggestive Report will resume the inquiry next summer with the view of modifying or confirming the results they have arrived at, and of throwing further light on the history of this terrible epidemic, which every year almost assumes the magnitude of a pestilence among the infants of Leicester.

M. DE TOUCHIMBERT reports that in the district round Poitiers, the sowing of the winter cereals has been remarkably and very seriously interfered with, first by the drought which prevailed up to the close of October, and then by continuous rains for the first fortnight in November, followed by severe frosts during the rest of the month. Heavy storms of wind followed each other in succession on Nov. 9, 10, and 11, doing great damage to houses, and uprooting and otherwise destroying trees. Pneumonia and bronchitis have been peculiarly prevalent, owing probably to these violent alternations of drought, great humidity, and low temperature.

M. ALBERT LE BLEU, chief engineer of mines at Rodez, has visited the Paris Observatory to consult regarding the organisation of the Departmental Meteorological Commission, of which

he is president. The Commission proposes to apply the grant received from the Council-general to a thorough examination of the rainfall, the thunderstorms, and particularly the storms of hail in the different valleys of Aveyron. An anemometer is to be erected at the top of the cathedral. In developing the extremely difficult question of the issue of weather forecasts calculated to be practically useful to agriculturists, it is recognised that the essential conditions of success as regards the observers are sound sense, intimate knowledge of the physical features of the district, and shrewdness in interpreting weather signs, such as long residence in the locality alone can give, and that it is also essential to success to carry out a minute and extensive observation of the rainfall, thunderstorms, and storms of hail within and immediately surrounding the district to which the weather-warnings are sent.

MR. JAMES PATON, who for many years has been connected with the Museum of Science and Art, Edinburgh, has been appointed Curator of the Industrial Museum, Glasgow.

THE first general meeting of the Mineralogical Society of Great Britain and Ireland is held to-day at the Scientific Club, Saville Row, at 12 o'clock (noon), when the chair will be taken by Mr. H. C. Sorby, F.R.S. The first ordinary meeting will be held at the same place and time to-morrow, when a paper will be read on the Scottish Rhombohedral Carbonates, by Prof. M. Forster Heddle, M.D.

It is proposed to establish a Technical College for Glasgow. In so far as the teaching of the textile department is concerned, the accomplishment of the scheme is all but assured.

As the Algerian Government have refused to take observations at eight o'clock in the morning, as in Europe, a Constantine newspaper, *Progrès de l'Est*, proposes to open a public subscription in order to send to France and England daily telegrams making known the state of weather in the colony. These weather telegrams are to be posted in the several hotels of Paris, London, Lyons, Marseilles, and other large cities, where intending tourists are likely to see them.

A SLIGHT earthquake was felt in Constantine, Algeria, at nine o'clock on the morning of Jan. 20. No damage was experienced. The duration was two seconds, and the shock vertical.

THE town of Abancay, in Peru, is reported to have been destroyed by an earthquake between 4 P.M. on the 4th and 9 A.M. on the 5th December. Thirty-seven shocks occurred, several very severe, with loss of life, the extent of which was not known.

By decree of the French Government, a Chair of Physical Astronomy has been established in the Faculty of Science, Bourdeaux, to be filled by M. Rayet, and at Lyons a Chair of Industrial and Agricultural Chemistry, to be filled by M. Raulin.

Two academies of medicine have been established by a decree of the President of the French Republic at Nantes and Marseilles.

PROF. TARGIONI has been appointed by the Italian Minister of Agriculture and Commerce Director of an Agrarian Entomological Station at Florence.

In the *Brighton Observer*, which made its first appearance in its new form on Friday last, is a London letter on the scientific doings of the week. It appears to be the first of a series, in which it is intended to give, in a popular form, an account of the lectures and papers read before the societies which are likely to be of general interest. The idea is, we believe, a novel one, and we hope it will find favour with readers.

THE rockwork in the tanks at the new Westminster Aquarium contains a considerable amount of Portland oolite. We understand that it was purchased from the debris of the Colosseum, Regent's Park, as a sandstone, and it appears to have been introduced into salt and fresh tanks alike without investigation as to how far it is suitable. It perhaps may do no harm, but it would be well if anyone who has experience of what its effect will be would communicate his knowledge before any animals are placed in the tanks. There is, in addition, a good supply of Carboniferous limestone used, and in considering the conditions, it must be remembered that the water circulates constantly from tank to tank, so that the carbonate of lime will be just as present to all the inhabitants of the aquarium as to the Lamellibranchs and others it might benefit.

THE last-issued number of the publication of the Eastbourne Natural History Society contains a paper by Mr. Jenner on the Macro-Lepidoptera of East Sussex.

THE additions to the Zoological Society's Gardens during the past week include a Rhesus Monkey (*Macacus erythraeus*) from India, presented by Mr. T. O. Davis; a Black-faced Spider Monkey (*Ateles ater*) from Central America, two Green Turtles (*Chelone viridis*) from the West Indies, presented by Captain King; a Grey Ichneumon (*Herpestes griseus*) from India, presented by Mr. H. Churchill; a Common Curlew (*Numenius arquatus*), a Herring Gull (*Larus argentatus*), a Common Gull (*Larus canus*), two Black-headed Gulls (*Larus ridibundus*), European, presented by Mr. Charles Clifton.

THE LOAN EXHIBITION OF SCIENTIFIC APPARATUS

THE following is a list of the members of the Foreign Committees, the appointment of whom has been already notified to the Department of Science and Art:—

BELGIUM.—M. le Général Brialmont, M. Dewalque, M. le Général Liagre, M. Maus, M. Plateau, M. Schwaun, M. Stas, M. Van Beneden.

FRANCE.—M. Alexre. Edmond Becquerel, M. Henri Marie Bouley, M. Gabriel Auguste Daubrée, M. Jean Louis Armand de Quatrefages De Breau, M. Jean Baptiste Dumas, M. Hervé Auguste Etienne Albans Faye, M. Edmond Fremy, M. Jules Célestin Jamin, M. Urbain Jean Joseph Le Verrier, Le Général Arthur Jules Morin, M. Eugène Melchior Peligot, M. Henri Edouard Tresca.

GERMANY.—I. *Berlin Committee*.—Dr. A. W. Hofmann, Dr. Beyrich, Dr. du Bois-Reymond, Dr. Dove, Dr. Förster, Dr. Hagen, T. G. Halks, Dr. Hauchecorne, Dr. Helmholz, Dr. Kiepert, Dr. G. Kirchhoff, Dr. Kronecker, Dr. C. D. Martius, Von Morozowicz, Dr. Neumayer, Dr. Reuleaux, Dr. Schellbach, Dr. W. Siemens, Dr. Virchow, Dr. C. H. Vogel, Dr. Websky.—II. *Committee representing other Cities and Towns of Germany*.—Dr. Von Babo, Dr. Beetz, Dr. Buff, Dr. Clausius, His Excellency Dr. Von Dechen, Dr. Von Fehling, Dr. Von Feilitzsch, Dr. Graebe, Dr. Von Groddeck, Dr. Heeren, Dr. Hittorf, Dr. Karsten, Kiel; Dr. Karsten, Rostoch; Dr. Knapp, Dr. Knoblauch, Dr. Kölliker, Dr. Kundt, Dr. Launhardt, Dr. Möhl, Dr. Poleck, Dr. Preyer, Dr. Von Quintus-Icilus, Dr. Reusch, Dr. Romberg, Dr. Rosenthal, Dr. Serlo, Dr. C. Von Siemens, His Excellency Dr. Von Steinbeis, Dr. W. Weber, Dr. Wiedemann, Dr. Winkler, Dr. Wöhler, Dr. Willner, Dr. Zeuner, Dr. Zetzsche.

ITALY.—Prof. Blaserna, Prof. Cantoni, Prof. Respighi.

THE NETHERLANDS.—Prof. Dr. P. D. Ryke, Prof. Dr. H. G. de Sande Bakhuyzen, Prof. C. H. D. Buys Ballot, Prof. J. Bosscha, Prof. Dr. F. C. Donders, F.R.S., Prof. J. W. Gunning, Prof. Dr. R. A. Mees, Prof. V. S. Van der Willigen, Dr. D. de Loos (Secretary).

SWITZERLAND.—Prof. E. Wartmann (President), Prof. J. Amsler Laffon, Prof. D. Colladon-Ador, Prof. Dr. F. A. Forel, Prof. Dr. E. Hagenbach-Bischoff, Prof. Ad. Hirsch, Prof. Albert Mousson, M. E. Sarasin-Diodati, Prof. L. Soret Colonel Gautier (Secretary).